A NEW SPECIES OF *NANNOCHARAX* (PISCES, DISTICHODONTIDAE) FROM SOUTH-EAST NIGERIA AND WEST CAMEROUN, WITH COMMENTS ON THE TAXONOMIC STATUS OF *HEMIGRAMMOCHARAX POLLI* ROMAN, 1966.

by

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ABSTRACT. - *Nannocharax latifasciatus* sp.n. is described from south-eastern Nigeria and western Cameroun. The species differs from all other *Nannocharax* in having a wider longitudinal band, a long, wide snout, larger eyes, a larger interorbital width, a longer head and longer anal fin. *Hemigrammocharax polli* is synonymised with *Nannocharax ansorgii*.

RÉSUMÉ. - *Nannocharax latifasciatus* sp. n. est décrit d'après des exemplaires du sud-est du Nigéria et de l'ouest du Cameroun. L'espèce se distingue des autres *Nannocharax* par une bande longitudinale plus large, un museau long et large, de grands yeux, une grande distance interorbitaire, une tête et une nageoire anale allongées. *Hemigrammocharax polli* est mis en synonymie avec *Nannocharax ansorgii*.

Key-words : Distichodontidae, *Nannocharax latifasciatus*, Nigeria, Cameroon, Taxonomy, New species.

Of the 24 species of *Nannocharax* Günther, 1867, listed by Daget and Gosse (1984) in the Check-list of the Freshwater Fishes of Africa, two are distinguished by the presence of a dark longitudinal band along the flanks and the head. These are *Nannocharax parvus* Pellegrin, 1906, described from the Ogowe river in Gabon and subsequently reported from coastal basins between the Ogowe and the Chiloango, and *Nannocharax ansorgii* Boulenger, 1911, described from Guinea Bissau and since collected from various basins in West Africa, from the Senegal to the Chad basins.

In recent fish collections from south-eastern Nigeria and western Cameroun, several *Nannocharax* specimens with a broad longitudinal lateral band were present. These differ substantially from the two species mentioned above, and represent a new species, described herein.

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NANNOCHARAX LATIFASCIATUS SP. N.

(Fig. 1)

Material examined :

Holotype : MRAC 88-12-P-1, 43.6 mm SL, from an affluent of the New Calabar river, 3 km south of Isiokpo (4°57′N-6°53′E), Nigeria; col. C.B. Powell; 17 January 1988.

Paratypes (40) : MRAC 88-12-P-2-5 (4), 21.3-43.1 mm SL, collected with the holotype; MRAC 88-12-P-6-11 (6), 35.2-45.3 mm SL, from the New Calabar river at Rumuji pipeline (4°56′N- 6°47′E), Nigeria, col. C.B. Powell, 23 Jan. 1986 (1 specimen cleared and stained); MRAC 88-12-P-12 (1), 24.9 mm SL, from the Sombreiro river at Odieke (5°08′N-6°41′E), Nigeria, col. C.B. Powell, 7 Jan. 1986 (specimen cleared and stained); MRAC 88- 12-P-13-14 (2), 32.0-41.0 mm SL, from the Sombreiro river at Ihuaba (5°02′N-6°41′E), Nigeria, col. C.B. Powell, 24 Mar. 1987; MRAC 87-24-P-85-86 (2), 32.6-35.0 mm SL, from the Sombreiro river at Okansu (5°22′N-6°43′E), Nigeria, col. C.B. Powell, 13 Mar. 1987; MRAC 87-21-P-9 (1), 49.2 mm SL, from the Cross river between James Island and Ikom (between 4°51′-5°58′N and 8°17′-8°42′E), Nigeria, col. T. Künzel, 1986; MRAC 88-37-P- 51-70 (20), 20.8-33.6 mm SL, from the Sombreiro river, about 6 km east of Omoku (5°21′N-6°44′E), Nigeria, col. T.R. Roberts, 6 Nov. 1987 and MRAC 88-37-P-71-74 (4), 20.6-36.7 mm SL, from the Umuayara river at Umuede about 25 miles north-northeast of Port Harcourt, Niger delta east of Niger mainstream (5°07′N- 7°06′E), Nigeria, col. T.R. Roberts, 8 Dec. 1987.

Additional specimens examined : 4 specimens, previously identified as *Nannocharax ansorgii* Boulenger 1911, MRAC 76-32-P- 206 (1), 76-32-P-2208 (1) and 76-32-P-4938-39 (2), 24.1-40.2 mm SL, from Yemoji (6°47′N-3°58′E), Ijebu Province, Nigeria, col. H.S. Clausen (29 Oct. 1958, 19 Jun. 1962 and 6 April 1959 respectively); 9 unregistered aquarium specimens, previously identified as *N. ansorgii* and *N. cf. parvus*, from the BMNH collections, 26.1-42.8 mm SL (5 of these specimens were collected by Smykala, probably in South-West Nigeria); 6 unregistered specimens USNM, 33.8-50.0 mm SL, from the main Upper Cross river downstream of Mamfe (5°46′N-9°18′E), Cameroun, col. G. McG. Reid, 1988.

Diagnosis : *Nannocharax latifasciatus* is distinguished from all other species of the genus by its broad dark longitudinal band running on the flanks along two rows of scales, the series perforated by the lateral line and the one ventral to it.

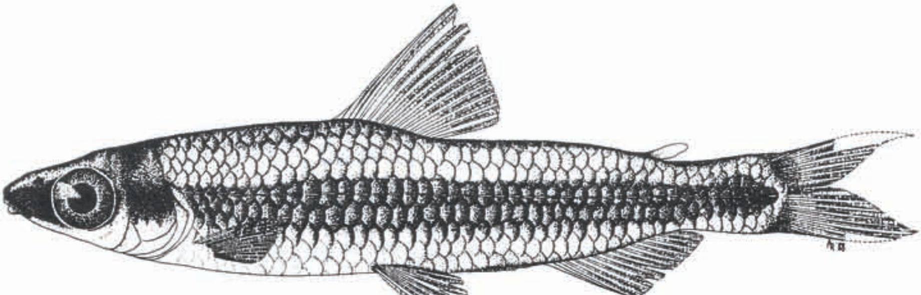

Fig. 1 : *Nannocharax latifasciatus* (MRAC 88-12-P-1, holotype, 43.6 mm SL)

Table I : Measurements and meristic counts for the holotype and paratypes of *Nannocharax latifasciatus*, new species.

	HOLOTYPE	PARATYPES	
		range	n
Total length (mm)	52.9	26.0-59.1	40
Standard length (SL) (mm)	43.6	20.6-49.2	40
Head length (HL) (%SL)	28.8	28.4-32.1	15
Maximum body depth (%SL)	20.4	16.7-22.7	15
Head depth (% HL)	55.4	48.7-56.3	15
Head width (% HL)	38.2	33.3-42.7	15
Snout length (% SL)	29.1	29.1-34.6	14
Eye diameter (% HL)	30.1	26.8-32.5	14
Postorbital length (% HL)	39.4	36.6-41.3	14
Interorbital distance (% HL)	23.5	21.2-24.9	14
Longest dorsal ray length (% SL)	18.2	16.7-22.1	14
Dorsal fin length (% SL)	13.6	12.0-14.0	14
Pelvic fin length (%SL)	14.7	13.0-16.7	14
Pectoral fin length (% SL)	13.1	12.8-17.9	14
Anal fin length (% SL)	16.1	12.8-16.9	14
Caudal peduncle length (CL) (% SL)	11.9	10.0-11.9	14
Caudal peduncle width (% CL)	71.2	66.3-86.4	14
Predorsal length (% SL)	46.1	43.7-48.5	14
Distance dorsal-adipose (% SL)	24.0	22.3-27.4	14
Pored scales in longit. series(*)	42	40(1),41(7),42(8)	
Unpored scales in longit. series(*)	1	0(15), 1(1)	
Scales between lat.line and dors.fin	5.5	5(4), 5.5(11)	
Scales between lat.line and pelv.fin	3.5	3.5(5),4(9),4.5(1	
Caudal peduncle scales	12	11(2),12(13)	
Predorsal scales	14	12(2),13(5), 13.5(1),14(6)	
Scales between dors.and adipose fins	13.5	13(8),13.5(2),14(4)	
Lateral scales on caudal peduncle	8	6(2),6.5(3), 7(6),7.5(3)	
Scales between anus and anal fin	1.5	1(5),1.5(9),2(2)	
Dorsal fin rays	III-11	II(2)-10/ III(12)-10(9),11(3	
Anal fin rays	II-12	II(2)-11,12/ III(12)10(3),11(6) 12(3)	
Pectoral fin rays	12	10(1),11(7),12(6)	
Pelvic fin rays	9	9(13), 10(1)	
Teeth on upper jaw	12	12(2),13(4),14(9) 16(1)	
Teeth on lower jaw	12	13(1),14(6),16(3)	
Lower gill rakers	6	5(1),6(9),7(6)	

(*)scales on caudal fin not included

The center of each scale on the dark band is light coloured. Thus it appears as if the dark band consists of two rows of superposed lozenges.

Description : Based on the holotype and paratypes ; morphometric proportions and meristic data are given in table 1.

The head is more than twice as long as wide, its depth gradually diminishing from the posterior margin of the operculum towards the snout. The tip of the snout is obtuse and the length of the wide snout is about equal to the eye diameter. The eyes are large and situated laterally, closer to the tip of the snout than to the posterior margins of the opercular. The dorsal surface of the head is rather flat and the interorbital distance wide, nearly equal to the eye diameter.

The mouth is terminal and wide. One row of 6 to 8 slender bicuspid teeth present on each premaxilla. The teeth gradually decrease in length posteriorly. Dentary with one row of 6 to 8 slender bicuspid teeth. Dentary movably joined to anterodorsal part of angulo-articular (Fig. 2). Length of maxillary plate nearly as long as length of first infraorbital, the latter being somewhat enlarged compared to other*Nannocharax* species (Fig. 3). Third, fourth and fifth infraorbitals reduced to bony tubes. Supraorbital lacking, opposite to the condition reported by Vari (1979) for other *Nannocharax* species. The gill rakers are small and the branchiostegal membranes are attached to the isthmus at a level situated somewhat posteriorly to the eyes.

The body, covered with scales with up to 19 ctenii, is compressed laterally, ovoid in transverse section and reaches its maximum depth just in front of the origin of the dorsal fin. The caudal peduncle is somewhat longer than deep. The lateral line runs straight mid-laterally from the head to the middle of the base of the caudal fin and is generally complete, with some perforated scales on the base of the caudal fin. Sometimes the lateral line is not quite complete, with one unpored scale before the caudal fin base. The anus is situated just anterior to the origin of the long anal fin.

The origin of the dorsal fin lies behind the vertical line through the posterior edge of the pectoral fins and forward of the anterior limit of the pelvic fins. The

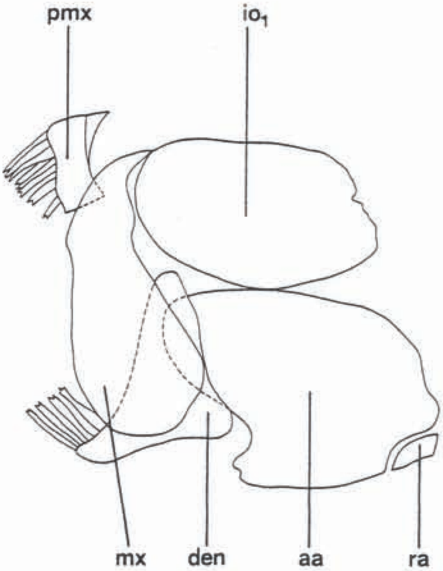

Fig. 2 : Left lateral view of the snout region of *Nannocharax latifasciatus* (MRAC 88-12-P-12, paratype, 24.9 mm SL). AA: angulo-articular; DEN: dentary; IO 1: first infraorbital; MX: maxilla; PMX: premaxilla; RA: retroarticular.

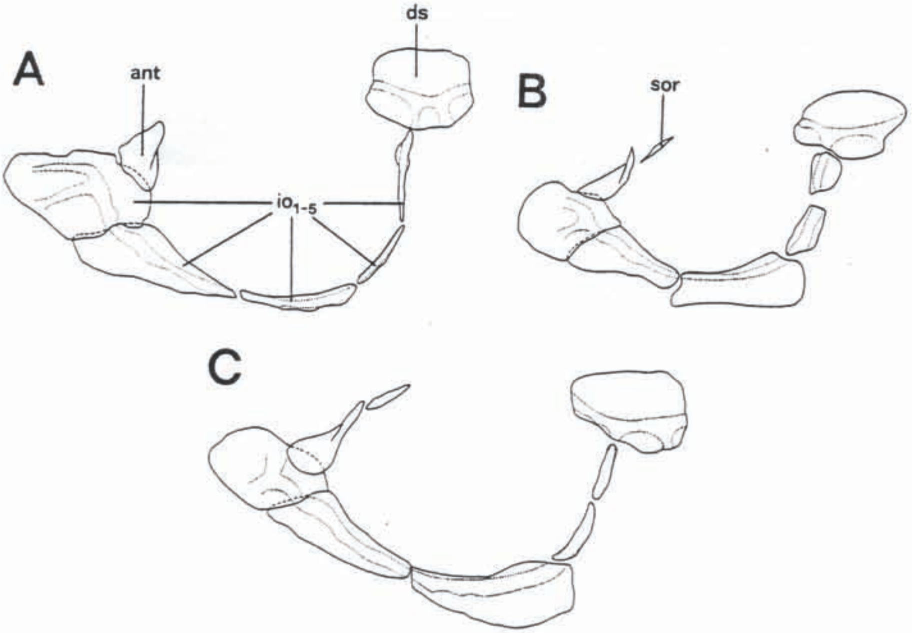

Fig. 3 : Left lateral view of the orbital region of (A) *Nannocharax latifasciatus* (MRAC 88-12-P-11, paratype, 45.3 mm SL); (B) *Nannocharax ansorgii* (MNHN 1957-39, Malapa, Niokolo Koba, 28.3 mm SL); (C) *Nannocharax parvus* (MNHN 1967.80-83, affl. Kouilou, 27.5 mm SL). ANT: antorbital; DS: dermosphenotic; IO: infraorbital; SOR: supraorbital.

dorsal fin is short- based with its first branched ray being the longest one. The anal fin is long-based, the posterior limit of its base is generally situated behind the level of the posterior limit of the adipose fin base. The first branched ray of the anal fin is the longest. The caudal fin is deeply forked, its upper lobe shorter than the lower. The pectoral fins are short, aligned vertically adjacent to the body wall; they are pointed posteriorly with the second ray the longest. The horizontally aligned pelvic fins are short, pointed, not reaching the anus, with the second ray being the longest. The adipose fin is small and located above the posterior end of the anal fin base.

Coloration : The general colour of preserved specimens is yellow-pale brown. A dark brown lateral band is present along each side of the body. The band starts at the tip of the snout, broadens until it reaches the anterior edge of the eye, continues on the operculum and mid-laterally on the side of the body and ends in a blotch which partly covers the middle of the caudal fin base. This dark band is composed of two rows of darkened scales, the one perforated by the lateral line and the row ventral to it. The centres of the darkened scales are clear and the lateral band appears to consist of two rows of superimposed lozenges. The dorsal surface of head and body is brown and the ventral surface of the head is pale. There is also a brown pigmented area from the anus to near the posterior end of the anal fin base. This pigment area often extends anteriorly to the medial portions of the bases of the pelvic fins. All the fins are pale grey, only the caudal fin shows two grey-brown pigment areas, one in the anterior, outer part of each lobe.

There is a red corona around the rounded posterior end of the longitudinal band in live specimens.

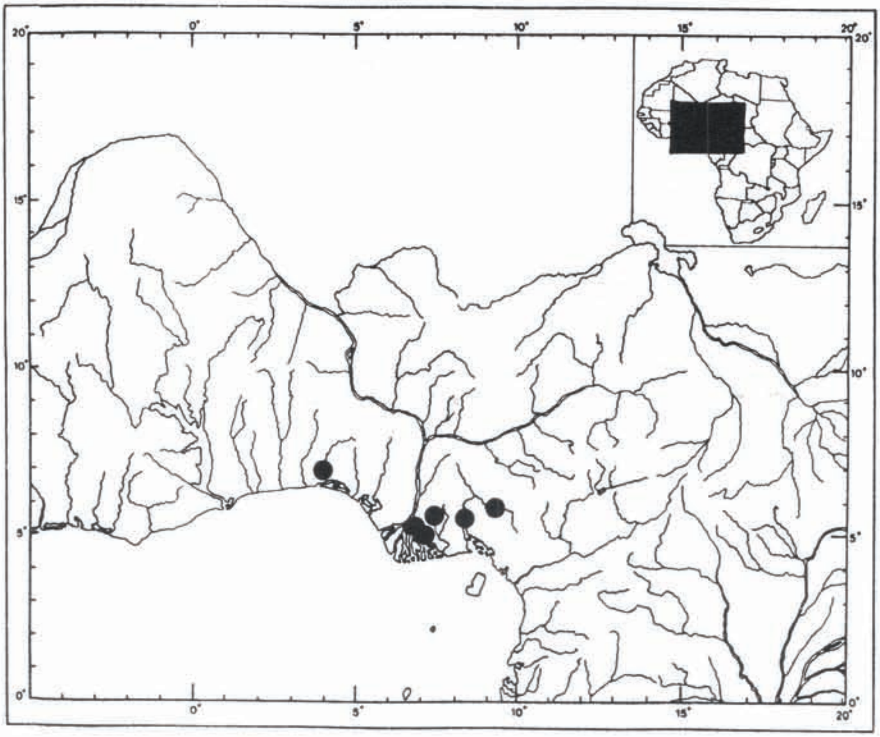

Fig. 4 : Geographical distribution of *Nannocharax latifasciatus*.

Distribution and habitat : The new species is known at present from south-eastern Nigeria and western Cameroun; it has been recorded from the Omi river (Ijebu Province, Nigeria), the Sombreiro, New Calabar and Umuayara-rivers (Niger delta), the Imo river and the lower and upper Cross river system (Nigeria/Cameroun) (see Figure 4).

The closely related *Nannocharax ansorgii*, the only other *Nannocharax* species with a longitudinal band on the body to occur in West Africa has not been collected from within the presently known range of *N. latifasciatus*.

The observed habitat of the new species is moderately flowing zones of acid (pH 5-6) and low conductivity (15-30 μS/cm) clearwater rivers with little seasonal change in chemistry, characterized by bottoms composed of sand and organic mud sections, with some bottom and littoral vegetation and partial shading by trees (Powell, *in litteris*).

Relationships : Within the genus *Nannocharax*, *N. latifasciatus* seems most close to the species complex characterized by a dark longitudinal band on the sides of the body (*N. ansorgii* and *N. parvus*). However, the lateral band in the latter two species is narrower, covering only the lateral line scale row. Moreover, the new species has a longer head (28.4-32.1% SL *versus* 22.9- 31.8% SL in the other two species) with a long, wide snout (snout length 29.1-34.6% HL *versus* 18.3-29.2% HL) and a larger interorbital width (21.2-24.9% HL *versus* 13.3-21.4% HL). It also differs in having a longer anal fin (13-15 anal fin rays *versus* 8-12 in *N. ansorgii* and 10-13 in *N. parvus*; 1-2 scales between anus and origin of anal fin *versus* 2-3 and 2.5-4 respectively).

Nannocharax latifasciatus has fewer scales between the posterior limits of the pectoral fin bases (3-4 *versus* 4-6 in the two other species). It has more teeth in the upper jaw (12-16 *versus* 10-14 in *N. ansorgii* and 9-11 in *N. parvus*) and a higher number of vertebrae (36 *versus* 31-34 in *N. ansorgii* and 32-34 in *N. parvus*). Finally the new species differs from *N. ansorgii* in having fewer scales on the caudal peduncle (11-12 *versus* 14-16) and fewer gill rakers on the lower part of the first branchial arch (5-7 *versus* 7-10).

In lack of an overall species revision of the genus *Nannocharax*, it is presently impossible to advance a definitive hypothesis on the phylogenetic position of *N. latifasciatus* within this assemblage.

Etymology : *latifasciatus*, from the Latin *latus*, broad, and *fascia*, band; referring to the broad lateral band.

NOTE ON THE TAXONOMIC STATUS OF *HEMIGRAMMOCHARAX POLLI*

The genus *Hemigrammocharax* was established by Pellegrin (1923) for *Nannocharax ocellicauda* Boulenger, 1907 described from the Ja river in Cameroon.

Nine species have subsequently been assigned to this genus, all originating from central and southern Africa, except for *H. polli* Roman, 1966 described on specimens from the Volta system in West Africa. Roman (1966) described his new species on the basis of the reduced lateral line, the generic character of *Hemigrammocharax*.

While preparing the description of *Nannocharax latifasciatus*, we examined large samples of *N. ansorgii* housed in the MRAC (Tervuren) and the MNHN (Paris). This study revealed the existence of two subgroups within this species. The first one is recognized by a complete or nearly complete lateral line (40- 45 lateral line scales on a total of 42-45 scales in longitudinal series). Specimens of this group were found in the Gambia, the Geba and Culufi rivers (Guinea Bissau) and the Waanje river (Sierra Leone).

The second group is characterized by a generally reduced lateral line (12-44 pored scales on a total of 39-45 scales in longitudinal series). Specimens of this group originate from the Senegal, Niger-Benue, Chad, Volta, Bandama, Comoe (Côte d'Ivoire) and Pra (Ghana) basins. A comparison between this group and the type material of *Hemigrammocharax polli*, housed in the MRAC (141464-470; 153223-240; 153247-256), showed them to be identical (Table II). The types series of *Hemigrammocharax polli* (35 specimens) have 41 to 44 scales in longitudinal series of which 4 to 27 are not pored by the lateral line. The fact that for a given river basin, one specimen shows a greatly reduced lateral line while another specimen has only a slightly reduced lateral line, and yet a third specimen has a complete lateral line obviously indicates that the diagnostic validity of this character is most questionable.

As already stated by Vari (1979) and Vari and Géry (1981) there is also some doubt as to wether the reduced lateral line of the various *Hemigrammocharax* species results from common ancestry or multiple independent losses; therefore, its value as an indicator of phylogenetic relationships can be questioned. A resolution to the problem of the monophyletic nature of *Nannocharax* and *Hemigrammocharax* would necessitate a species level revision of both genera. This revision is the subject of forth coming research.

On the basis of the results obtained from the comparative study of *Nannocharax ansorgii* and *Hemigrammocharax polli*, however, we are presently unable to distinguish the two forms and we therefore place *H. polli* as the junior synonym of *N. ansorgii*.

Table II : Measurements and meristic counts for *Nannocharax ansorgii* and the type series of *Hemigrammocharax polli*.

	N. ansorgii (2 subgroups) n =30	H. polli n = 35
Total length (mm)	22.7-45.2	25.5-36.0
Standard length (mm)	19.0-37.2	20.2-31.0
Dorsal fin rays	11-14	12-15
Anal fin rays	8-12	11
Pectoral fin rays	10-13	12-13
Pelvic fin rays	8-10	9
Scales between LL and dorsal fin	5-6	5 1/2
Scales betw. LL and ventral fins	4-5	(6)
Caudal peduncle scales	13-16	14-16
Teeth on upper jaw	10-14	12-13
Lower gill rakers	7-10	8-9

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